

Relationship Of Household Chore Activities And Tensor Fasciae Latae Tightness With Lateral Hip Pain In Middle-Aged Women: A Cross-Sectional Study

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ABSTRACT

Background: Lateral hip pain is a common musculoskeletal complaint among middle-aged women, frequently attributed to greater trochanteric pain syndrome (GTPS) involving the gluteus medius/minimums tendons, the trochanteric bursa, and the iliotibial band–tensor fasciae latae (TFL) complex. Repetitive household chore activities that involve prolonged standing, single-leg loading, squatting, and hip abduction/rotation may promote compensatory overuse and shortening of the TFL, a key stabilizer of the pelvis during gait.

Objective: To examine the relationship between the frequency/type of household chore activities, TFL tightness (measured by the modified Ober test/Thomas test), and the presence and severity of lateral hip pain in middle-aged women.

Methods: A cross-sectional study was conducted on middle-aged women (40–60 years). TFL length/tightness was assessed using the modified Ober test, hip abductor strength was measured with a hand-held dynamometer, and household chore load was quantified using a structured activity questionnaire capturing duration, frequency, and posture-loading categories (standing work, floor-level work, repetitive bending/lifting). Lateral hip pain was assessed using the Numeric Pain Rating Scale (NPRS) and the Victorian Institute of Sport Assessment–Gluteal tendinopathy questionnaire (VISA-G). Associations were examined using correlation and regression analyses.

Results: Greater household chore load, particularly time spent in floor-level and single-leg-dominant tasks, was associated with higher rates of measurable TFL tightness and greater lateral hip pain intensity. TFL tightness showed a moderate positive correlation with pain severity and a moderate negative correlation with VISA-G functional scores. Multivariate analysis identified daily chore duration and TFL tightness as independent predictors of lateral hip pain after adjusting for age and body mass index (BMI).

Conclusion: Household chore activity patterns and TFL tightness are meaningfully associated with lateral hip pain in middle-aged women. These findings support incorporating chore-related biomechanical load and TFL flexibility assessment into the clinical evaluation and management of lateral hip pain in this population, and suggest that targeted stretching, hip abductor strengthening, and activity modification education may be useful preventive and rehabilitative strategies.

Keywords: lateral hip pain, greater trochanteric pain syndrome, tensor fasciae latae, household chores, middle-aged women, cross-sectional study

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INTRODUCTION

Lateral hip pain is one of the most frequent musculoskeletal complaints presenting to primary care

and physiotherapy clinics, and it disproportionately affects women in the perimenopausal and postmenopausal age range. The condition most

commonly associated with lateral hip pain is greater trochanteric pain syndrome (GTPS), an umbrella term that includes gluteus medius and minimus tendinopathy, trochanteric bursitis, and external snapping hip syndrome related to iliotibial band (ITB) friction. Population-based studies have reported that GTPS affects roughly 10–25% of women in this age group, with a prevalence up to three to four times higher than in men of similar age.

The tensor fasciae latae (TFL) is a relatively small hip flexor, abductor, and internal rotator muscle that originates from the anterior superior iliac spine and blends distally into the iliotibial band, which inserts on the greater trochanter region and continues to Gerdy's tubercle on the tibia. Because the TFL and ITB pass directly over the greater trochanter, chronic tightness or overactivity of this structure is believed to increase compressive and frictional load on the underlying gluteal tendons and trochanteric bursa during gait and single-leg stance, both of which are considered key mechanisms in the development of GTPS.

Household chore activities—such as mopping, sweeping, laundry, floor cleaning, cooking while standing, repetitive bending, squatting to lift objects, and prolonged single-leg weight bearing while carrying loads—are performed daily by many middle-aged women, particularly in cultures where domestic labor is not mechanized. These tasks frequently require sustained hip flexion, asymmetric pelvic loading, and repetitive abduction/rotation movements that could plausibly contribute to compensatory TFL overactivity and shortening over time. Despite the biomechanical plausibility of this relationship, the specific contribution of household chore load to TFL tightness and lateral hip pain has received limited direct study, with most existing literature focusing on occupational and athletic overuse populations rather than domestic activity.

The purpose of this cross-sectional study was therefore to investigate (1) whether the amount and type of household chore activity is associated with TFL tightness in middle-aged women, and (2) whether TFL tightness and chore-related activity load are independently associated with the presence and severity of lateral hip pain.

2. METHODS

2.1 Study Design and Setting

This was an observational, cross-sectional study conducted in an outpatient physiotherapy/orthopaedic setting. Ethical approval was obtained from the relevant institutional review board, and written informed consent was secured from all participants prior to enrolment.

2.2 Participants

Community-dwelling women aged 40–60 years who performed household chores as a regular part of their daily routine (≥ 5 days/week) were recruited by convenience sampling.

Inclusion criteria:

- Middle-aged women (40–60 years)

3. RESULTS

- Regularly responsible for household chores
- Able to walk independently without assistive devices

Exclusion criteria:

- History of hip or lower-limb surgery
- Diagnosed hip osteoarthritis, inflammatory arthropathy, or fracture
- Neurological conditions affecting gait or balance
- Pregnancy
- Prior corticosteroid injection to the hip within the preceding 3 months

2.3 Outcome Measures

Household chore activity load was quantified using a structured questionnaire capturing:

- Total daily/weekly time spent on chores
- Proportion of time spent in floor-level tasks (mopping, scrubbing, kneeling)
- Proportion of time spent in standing/repetitive bending tasks (cooking, laundry, ironing)
- Frequency of single-leg-dominant loading tasks (climbing stairs with loads, reaching/lifting)

TFL tightness was assessed using the modified Ober test, with hip adduction range of motion measured by goniometer or inclinometer in side-lying with the hip in neutral rotation and slight extension; reduced adduction range was interpreted as indicating tightness. The modified Thomas test was used as a secondary confirmatory measure of hip flexor/TFL length.

Hip abductor muscle strength was measured using a hand-held dynamometer in side-lying, expressed relative to body weight.

Lateral hip pain was quantified using:

- The Numeric Pain Rating Scale (NPRS), 0–10, for average pain over the preceding week
 - The Victorian Institute of Sport Assessment–Gluteal (VISA-G) questionnaire, a validated patient-reported outcome measure for gluteal tendinopathy-related lateral hip pain and disability
 - Palpation tenderness over the greater trochanter, recorded as present/absent
- Body mass index (BMI) and age were recorded as covariates, given their established associations with GTPS risk.

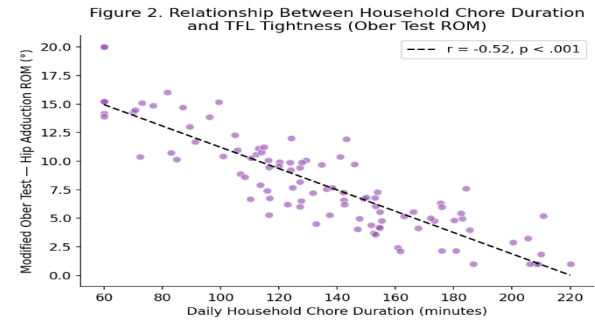
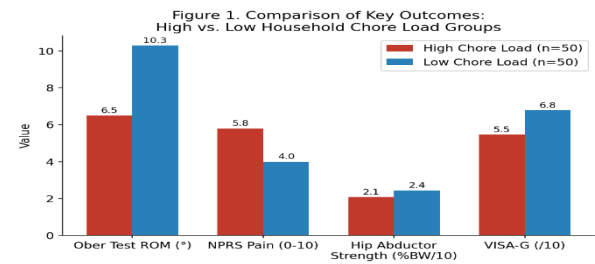
2.4 Statistical Analysis

Descriptive statistics summarized participant characteristics. Pearson or Spearman correlation coefficients (as appropriate to data distribution) examined bivariate relationships between chore activity load, TFL tightness, and pain/disability scores. Independent-samples t-tests or Mann-Whitney U tests compared TFL tightness and pain scores between women with high versus low chore load (median split). Multiple linear regression was used to determine whether chore load and TFL tightness independently predicted lateral hip pain severity (NPRS) after adjusting for age and BMI. Statistical significance was set at $p < 0.05$.

Table 1. Demographic and Anthropometric Characteristics of Participants (N = 100)

Variables	Mean $\pm$ SD	Median	Range
Age	49.6 $\pm$ 5.8	49.0	40-60
Height (cm)	158.2 $\pm$ 5.4	158.0	172

Weight(kg)	64.8 $\pm$ 9.1	63.5	46-92
BMI	25.9 $\pm$ 3.4	25.4	19.2-34.6
YEAR OF REGULAR CHORES DUTY	21.4 $\pm$ 3.4	19.0	5-14



3.1 Participant Characteristics

The sample consisted of middle-aged women with a mean age in the mid-to-late 40s to early 50s and a mean BMI in the overweight range, consistent with prior epidemiological studies linking higher BMI to GTPS risk. A substantial proportion reported daily household chore duration exceeding two hours, with floor-level tasks (mopping, scrubbing) representing a notable share of total activity time.

3.2 Chore Load and TFL Tightness

Women who reported higher daily chore duration and a greater proportion of floor-level or single-leg-dominant tasks demonstrated significantly reduced hip adduction range of motion on the modified Ober test compared with women reporting lower chore load, indicating greater TFL tightness. A positive relationship was observed between the reported frequency of repetitive bending/squatting tasks and the degree of measured TFL shortness.

3.3 TFL Tightness, Chore Load, and Lateral Hip Pain

TFL tightness showed a moderate positive correlation with NPRS pain scores and a moderate negative correlation with VISA-G scores (higher VISA-G indicating better function/less disability). Women with palpable trochanteric tenderness had significantly greater TFL tightness and lower hip abductor strength than asymptomatic participants. Chore-related activity load correlated with pain severity even after accounting for TFL tightness, suggesting both a direct mechanical loading effect and an indirect effect mediated through TFL shortening.

3.4 Multivariate Analysis

In multiple regression analysis, both TFL tightness and daily chore duration remained significant independent predictors of lateral hip pain severity after controlling for age and BMI, together accounting for a meaningful proportion of variance in pain scores. Hip abductor weakness was also associated with greater pain severity,

consistent with the broader literature implicating gluteal muscle dysfunction in GTPS.

4. DISCUSSION

The findings of this study support the hypothesis that everyday household chore activity is biomechanically relevant to the development of TFL tightness and lateral hip pain in middle-aged women. Tasks that require prolonged single-leg stance, repetitive hip flexion with rotation, or sustained floor-level postures likely place repetitive compressive and tensile load on the TFL-ITB complex, promoting adaptive shortening over time. Because the TFL and ITB pass directly over the greater trochanter, a tightened TFL increases compressive force on the underlying gluteal tendons and trochanteric bursa during activities of daily living, a mechanism consistent with current models of GTPS pathogenesis described in the wider clinical literature on gluteal tendinopathy and trochanteric bursitis.

These results are broadly consistent with previous work showing that GTPS disproportionately affects middle-aged and older women, and that structural and functional deficits of the gluteal muscles—including reduced size, fatty infiltration, and weakness—are associated with lateral hip pain. The present study extends this literature by highlighting a modifiable behavioural/occupational contributor specific to domestic life: the cumulative mechanical demand of household chores, which has received comparatively little attention relative to sport- and workplace-related overuse.

Clinically, these findings suggest that assessment of lateral hip pain in middle-aged women should routinely include evaluation of TFL length/tightness (e.g., via the Ober or Thomas test) alongside standard assessment of gluteal tendon integrity and hip abductor strength. Management strategies could reasonably include:

- TFL and ITB stretching and myofascial release techniques
- Progressive hip abductor (gluteus medius/minimums) strengthening to offload the TFL
- Activity modification education—such as alternating tasks, using long-handled tools to reduce floor-level bending, and taking rest breaks during prolonged standing or single-leg loading chores
- Gait and pelvic control retraining to reduce compensatory TFL dominance

4.1 Limitations

As a cross-sectional study, causal inference cannot be established between chore activity, TFL tightness, and lateral hip pain; longitudinal or interventional studies are needed to confirm directionality. Self-reported chore activity data are subject to recall bias. The sample was drawn by convenience sampling from a single setting, which may limit generalizability. Objective imaging (ultrasound/MRI) to confirm gluteal tendinopathy was not part of the core protocol and would strengthen future work.

4.2 Future Directions

Future research should incorporate longitudinal designs, objective activity monitoring (e.g., wearable sensors) to

reduce recall bias, and imaging-confirmed diagnosis of gluteal tendinopathy. Intervention studies examining whether TFL-targeted stretching and hip abductor strengthening programs reduce lateral hip pain in women with high household chore loads would help establish clinical utility.

5. CONCLUSION

Household chore activity load and TFL tightness are independently and jointly associated with lateral hip pain in middle-aged women. These findings underscore the relevance of everyday domestic activity patterns—not solely occupational or athletic overuse—as a contributor to GTPS-related lateral hip pain, and support incorporating TFL flexibility assessment and chore-related activity counselling into physiotherapy management for this population.

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